IMPACTS OF METALS AND METALLIC MINING ON AQUATIC ECOSYSTEMS AND HUMAN HEALTH

Instructors: Dr. Frances Solomon and Dr. Elizabeth Hodges Snyder
Seminar Dates: November 30 – December 2, 2010

AGENDA

The seminar will meet for eight hours each day including a one hour break for lunch and two 15-minute breaks for coffee/tea and snacks.

Tuesday, November 30

Morning

Introductions
Properties of metals
Sources of metal discharges to waterbodies
Exposure pathways
Mechanisms of action of toxic metals
Toxicity measurements

In-class exercise: plotting a dose-response curve

Factors affecting metal toxicity

Afternoon

Impacts of copper, zinc, silver, aluminum, nickel, and cadmium on aquatic organisms and ecosystems

Wednesday, December 1

Morning

Impacts of mercury, lead, molybdenum, gold/cyanide, chromium, and selenium on aquatic organisms and ecosystems

Afternoon

Comparative toxicities of metals
Toxicity testing methods – traditional and biotic ligand model

In-class exercise: small group presentations of case studies

Thursday, December 2

Morning
Impacts of mercury, cadmium, lead, selenium, nickel, chromium, aluminum, and gold/cyanide on human health

Afternoon

Environmental fate and transport mechanisms for metals

Human and ecosystem health risk assessment

Health impact assessment (HIA); Alaska-specific examples

Course evaluations